

Trend Study14-28-99

Study site name: North Cottonwood.

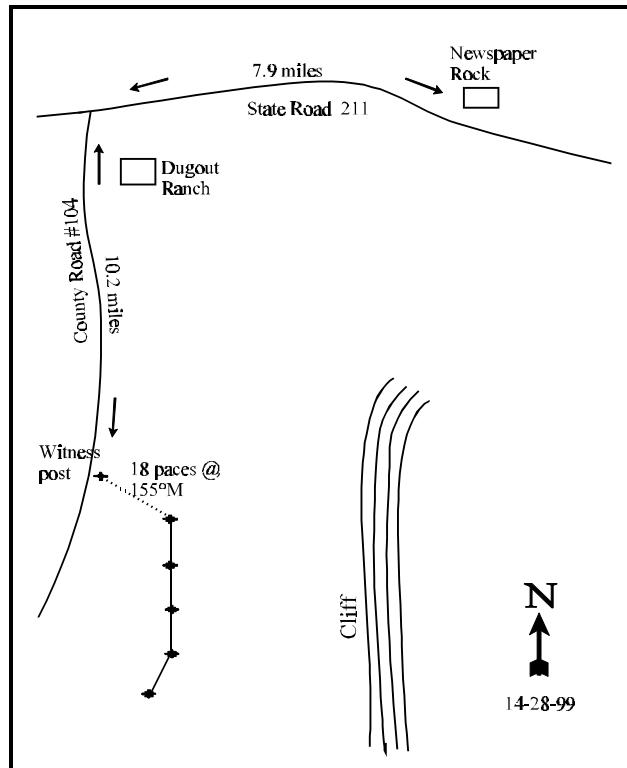
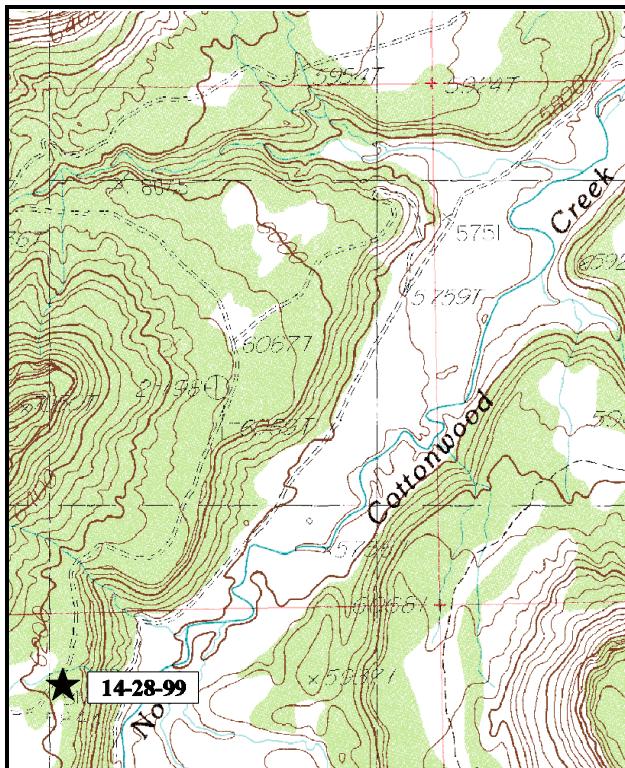
Range type: Pinyon-Juniper.

Compass bearing: frequency baseline 165°M-lines 1-3; 192°M-line 4.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1(11 and 95 ft), line 2(34 ft), line 3(59 ft), line 4(71ft).

LOCATION DESCRIPTION

Take the Canyonlands National Park turnoff from SR 191, and go west 20.8 miles to County Road #104 to Dugout Ranch (7.9 miles from Newspaper Rock). Turn left, and travel 10.2 miles, passing Dugout Ranch and several cattleguards to a witness post on the left side of the road. The 0 ft stake is 18 paces away from the witness post at a bearing of 155°M. The 0 foot stake has browse tag #7844 attached.



Map name: Shay Mountain

Township 32S, Range 21E, Section 28.

Diagrammatic Sketch

UTM 4203447.870 N, 621053.941 E

DISCUSSION

Trend Study No. 14-28 (36-16)

The North Cottonwood study is located on the rim of a narrow, rocky pinyon-juniper bench below Bridger Jack Mesa, above North Cottonwood Creek. It is bounded on the east and west by sheer sandstone cliffs. Administered by the BLM, this low country is primarily winter range. Two hundred cattle graze through the area for 1 - 3 months between June 15 and October 16. Forage for cattle is limited, so use does not appear concentrated and sign is scarce. The area is also utilized by wintering deer. The west Rim North Cottonwood pellet group transect, located parallel to the study site, averaged only 1 deer days use/acre (3 ddu/ha) between 1981 and 1986. Pellet group data taken along the trend study site baseline in 1999 estimate 3 deer days use/acre (7 ddu/ha) and 9 cow days use/acre (22 cdu/ha). All cattle pats and deer pellet groups appeared to be from last year. Rabbit sign was abundant.

Elevation of the site is 6,200 feet, approximately 500 feet above North Cottonwood Creek. Slope is less than 2% with a slight northeast aspect. The red-brown sandy loam soil is very prone to erosion. Because of the underlying sandstone layer, the soil is generally shallow with exposed bedrock outcrops. Effective rooting depth was estimated at almost 12 inches. Phosphorus and potassium are low at just 3.8 ppm and 57.6 ppm respectively. Values less than 10 ppm for phosphorus and 70 ppm for potassium have been shown to limit normal plant growth and development. Organic matter is also relatively low at 1.3%. In some places, vegetation, especially grasses and cryptogams, hold the soil. However, the predominance of bare soil and lack of vegetative cover contribute to occasional heavy soil losses during high intensity summer storms. During these intense summer storms, numerous gullies have been cut deeper by the rapid flow of soil-laden water. Protective ground cover is lacking with an average value of 41% for bare soil.

Mature pinyon and juniper dominate this arid bench. They provide excellent thermal cover, but forage is lacking. Understory vegetation is sparse, although the browse component is fairly diverse with 13 species being inventoried. The only shrubs to show signs of use are the more palatable species which includes: mountain mahogany, bitterbrush, and slenderbush eriogonum. The only common shrub on the site is broom snakeweed. It had a density of 2,866 plants/acre in 1986, increasing to 14,200 by 1999. Plants are relatively small, measuring only 6 inches in height. Mature juniper and pinyon visually dominate the site. Point quarter data from 1999 estimate 76 juniper and 97 pinyon trees/acre. The juniper are old mature trees with an average diameter of nearly 14 inches, while pinyon average only 5.5 inches in diameter.

The herbaceous understory is poor with a combined grass and forb cover of only 4%. Blue grama and Indian ricegrass are the most abundant perennial grasses. The forb composition is dominated by pepperweed and rock goldenrod. The herbaceous component provides very little forage and provides poor soil protection.

1986 APPARENT TREND ASSESSMENT

Site characteristics severely limit the potential for forage production. Erosion is a serious factor with management options being very limited. Severe erosion is to be expected on such a site. The overall soil trend appears to be declining. The pinyon-juniper woodland will maintain a mature stand. The vegetative community is probably fairly stable, although populations of increasers, especially broom snakeweed, and annuals will fluctuate. Continued management as a lightly used seasonal range seems to be the best plan. This site may not meet the criteria of a "key area" as defined in the Interagency range trend study manual and may not provide information that would facilitate effective habitat management on the unit.

1999 TREND ASSESSMENT

This site was revisited in 1999 to see if conditions had changed since the initial reading in 1986. The site appears stagnant with little use by wildlife or livestock. It will be discontinued as a trend study site in the

future. Trend for soil is stable but in very poor condition. Percent litter cover declined dramatically but percent bare ground remained stable. Rock and pavement cover increased three fold, indicating continued soil loss. Trend for browse is down slightly. The browse composition is diverse, yet condition is poor and no species is very abundant except for broom snakeweed which increased five fold since 1986. Preferred species are rare and bitterbrush, true mountain mahogany, and black sagebrush have declined in density. The herbaceous understory is very poor. Grasses produced only 1% cover in 1999, while forbs provided only 3%. Trend is considered stable but in very poor condition. Sum of nested frequency for grasses declined slightly, while frequency of forbs increased slightly.

TREND ASSESSMENT

soil - stable but poor

browse - down slightly and poor

herbaceous understory - stable but poor

HERBACEOUS TRENDS --

Herd unit 14 , Study no: 28

| T y p e | Species | Nested Frequency | | Quadrat Frequency | | Average Cover % '99 |
|-----------------------------|---------------------------------|------------------|-----|-------------------|-----|------------------------|
| | | '86 | '99 | '86 | '99 | |
| G | <i>Agropyron cristatum</i> | 3 | 4 | 1 | 2 | .06 |
| G | <i>Bouteloua gracilis</i> | 26 | 20 | 11 | 10 | .32 |
| G | <i>Bromus tectorum</i> (a) | - | 23 | - | 10 | .21 |
| G | <i>Hilaria jamesii</i> | - | 3 | - | 1 | .00 |
| G | <i>Oryzopsis hymenoides</i> | 14 | *4 | 9 | 3 | .36 |
| G | <i>Sitanion hystrix</i> | 37 | 22 | 18 | 11 | .08 |
| G | <i>Vulpia octoflora</i> (a) | - | 8 | - | 4 | .02 |
| Total for Annual Grasses | | 0 | 31 | 0 | 14 | 0.23 |
| Total for Perennial Grasses | | 80 | 53 | 39 | 27 | 0.82 |
| Total for Grasses | | 80 | 84 | 39 | 41 | 1.06 |
| F | <i>Arabis</i> spp. | - | *6 | - | 4 | .04 |
| F | <i>Astragalus miser</i> | 2 | - | 1 | - | - |
| F | <i>Chaenactis douglasii</i> | - | *27 | - | 14 | .12 |
| F | <i>Descurainia pinnata</i> (a) | - | 3 | - | 1 | .03 |
| F | <i>Draba</i> spp. (a) | - | 50 | - | 18 | .11 |
| F | <i>Euphorbia fendleri</i> | 9 | 5 | 6 | 3 | .06 |
| F | <i>Holosteum umbellatum</i> (a) | - | 5 | - | 2 | .01 |
| F | <i>Hymenoxys acaulis</i> | 14 | 11 | 7 | 7 | .18 |
| F | <i>Lappula occidentalis</i> (a) | - | 3 | - | 1 | .00 |
| F | <i>Lepidium montanum</i> | 66 | *36 | 34 | 15 | .80 |
| F | <i>Lesquerella</i> spp. | - | 6 | - | 2 | .06 |
| F | <i>Penstemon comarrhenus</i> | 10 | 1 | 5 | 1 | .00 |
| F | <i>Petradoria pumila</i> | - | *22 | - | 12 | 1.12 |
| F | <i>Phlox hoodii</i> | 27 | *11 | 13 | 5 | .34 |

| Type | Species | Nested Frequency '86 '99 | | Quadrat Frequency '86 '99 | | Average Cover % '99 |
|------|-----------------------------|-----------------------------|-----|------------------------------|----|------------------------|
| F | <i>Senecio multilobatus</i> | 14 | 7 | 9 | 4 | .02 |
| F | <i>Townsendia incana</i> | 18 | 18 | 7 | 7 | .08 |
| | Total for Annual Forbs | 0 | 61 | 0 | 22 | 0.15 |
| | Total for Perennial Forbs | 133 | 150 | 69 | 74 | 2.85 |
| | Total for Forbs | 133 | 211 | 69 | 96 | 3.01 |

* Indicates significant difference at % = 0.10

BROWSE TRENDS --

Herd unit 14 , Study no: 28

| Type | Species | Strip Frequency '99 | Average Cover % '99 |
|------|--|------------------------|------------------------|
| B | <i>Artemisia nova</i> | 0 | - |
| B | <i>Artemisia tridentata wyomingensis</i> | 2 | - |
| B | <i>Atriplex canescens</i> | 0 | - |
| B | <i>Cercocarpus montanus</i> | 2 | .30 |
| B | <i>Chrysothamnus nauseosus</i> | 0 | - |
| B | <i>Chrysothamnus viscidiflorus</i> | 3 | .68 |
| B | <i>Cowania mexicana stansburiana</i> | 0 | - |
| B | <i>Coryphantha vivipara arizonica</i> | 1 | - |
| B | <i>Echinocereus spp.</i> | 1 | - |
| B | <i>Ephedra viridis</i> | 0 | - |
| B | <i>Eriogonum microthecum</i> | 8 | .21 |
| B | <i>Gutierrezia sarothrae</i> | 74 | 2.92 |
| B | <i>Juniperus osteosperma</i> | 2 | .15 |
| B | <i>Opuntia spp.</i> | 10 | - |
| B | <i>Philadelphus microphyllus</i> | 0 | - |
| B | <i>Pinus edulis</i> | 1 | 1.56 |
| B | <i>Purshia tridentata</i> | 0 | - |
| B | <i>Rhus trilobata trilobata</i> | 1 | - |
| B | <i>Sclerocactus</i> | 2 | - |
| B | <i>Symporicarpos oreophilus</i> | 10 | .89 |
| B | <i>Yucca baccata baccata</i> | 0 | - |
| | Total for Browse | 117 | 6.73 |

CANOPY COVER --
Herd unit 14 , Study no: 28

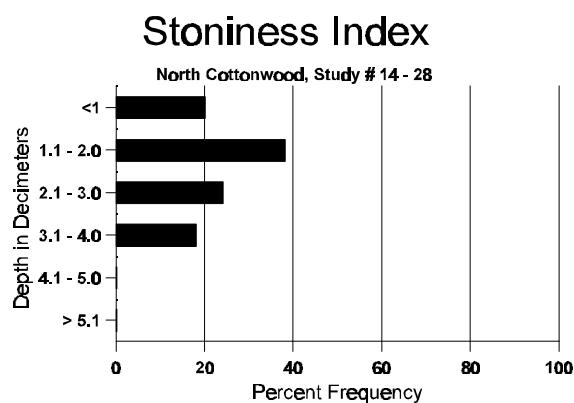
| Species | Percent Cover '99 |
|-----------------------|----------------------|
| Juniperus osteosperma | 1 |
| Pinus edulis | 3 |

BASIC COVER --
Herd unit 14 , Study no: 28

| Cover Type | Nested Frequency '99 | Average Cover % | |
|-------------|----------------------------|--------------------|-------|
| | | '86 | '99 |
| Vegetation | 191 | 4.50 | 9.66 |
| Rock | 153 | 3.00 | 11.03 |
| Pavement | 201 | 2.50 | 7.75 |
| Litter | 331 | 44.00 | 24.40 |
| Cryptogams | 143 | 4.50 | 9.77 |
| Bare Ground | 335 | 41.50 | 40.75 |

SOIL ANALYSIS DATA --
Herd Unit 14, Study # 28, Study Name: North Cottonwood

| Effective rooting depth (inches) | Temp °F (depth) | pH | %sand | %silt | %clay | %OM | PPM P | PPM K | dS/m |
|--|--------------------|-----|-------|-------|-------|-----|-------|-------|------|
| 11.9 | 65.6 (14.1) | 7.6 | 62.0 | 19.4 | 18.6 | 1.3 | 3.8 | 57.6 | 0.5 |



PELLET GROUP FREQUENCY --
Herd unit 14 , Study no: 28

| Type | Quadrat Frequency '99 | Pellet Transect Days Use/Acre (ha) '99 |
|--------|-----------------------------|--|
| Rabbit | 24 | N/A |
| Deer | - | 3 (7) |
| Cattle | - | 9 (22) |

BROWSE CHARACTERISTICS --

Herd unit 14 , Study no: 28

| A G R E | Y | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | Total | |
|--|-----|----------------------------|---|---|------------------|---|---|-------------------|---|---|----------------|-----|----|------|--------------------|--------------------------------|---------|--------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | | |
| <i>Artemisia nova</i> | | | | | | | | | | | | | | | | | | |
| M 99 | 86 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 66 0 | 6 - | 14 - | 2 0 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | |
| | '86 | 00% | | | 00% | | | 00% | | | | | | | | | | |
| | '99 | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 66 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 0 | | - | | | |
| <i>Artemisia tridentata wyomingensis</i> | | | | | | | | | | | | | | | | | | |
| M 99 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 99 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | 16 | 13 | 2 |
| X 99 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 40 | | | 2 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | |
| | '86 | 00% | | | 00% | | | 00% | | | | | | | | | | |
| | '99 | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 40 | | - | | | |
| <i>Atriplex canescens</i> | | | | | | | | | | | | | | | | | | |
| M 99 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 9 | 13 | 0 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | |
| | '86 | 00% | | | 00% | | | 00% | | | | | | | | | | |
| | '99 | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 0 | | - | | | |
| <i>Cercocarpus montanus</i> | | | | | | | | | | | | | | | | | | |
| M 99 | 86 | 1 | 1 | - | - | - | - | - | - | - | 2 | - | - | - | 66 | 37 | 33 | 2 |
| | 99 | - | 2 | - | - | - | - | - | - | - | 2 | - | - | - | 40 | 42 | 60 | 2 |
| D 99 | 86 | - | - | 1 | - | - | - | - | - | - | 1 | - | - | - | 33 | | | 1 |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | | 0 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | |
| | '86 | 33% | | | 33% | | | 00% | | | -60% | | | | | | | |
| | '99 | 100% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 99 | Dec: | 33% | | | |
| | | | | | | | | | | | | '99 | 40 | | 0% | | | |
| <i>Chrysothamnus nauseosus</i> | | | | | | | | | | | | | | | | | | |
| M 99 | 86 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | 55 | 48 | 1 |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | |
| | '86 | 00% | | | 00% | | | 00% | | | | | | | | | | |
| | '99 | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 33 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 0 | | - | | | |

| A G R E | Y | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | Total | |
|--|---|----------------------------|---|---|------------------|---|---|-------------------|---|---|-------------|---------|----|------|--------------------|--------------------------------|-------|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | | |
| Chrysothamnus viscidiflorus | | | | | | | | | | | | | | | | | | |
| M 96 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| 99 | 3 | - | - | - | - | - | - | - | - | - | 3 | - | - | - | 60 | 32 | 26 | 3 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | | %Change | | | | | | |
| '86 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| '99 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 60 | | - | | | |
| Cowania mexicana stansburiana | | | | | | | | | | | | | | | | | | |
| M 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 23 | 32 | 0 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | | %Change | | | | | | |
| '86 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| '99 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 0 | | - | | | |
| Coryphantha vivipara arizonica | | | | | | | | | | | | | | | | | | |
| M 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| 99 | 1 | - | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | - | - | 1 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | | %Change | | | | | | |
| '86 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| '99 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 20 | | - | | | |
| Echinocereus spp. | | | | | | | | | | | | | | | | | | |
| M 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| 99 | 2 | - | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | 3 | 8 | 2 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | | %Change | | | | | | |
| '86 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| '99 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 40 | | - | | | |
| Ephedra viridis | | | | | | | | | | | | | | | | | | |
| M 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | - | 0 |
| 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 19 | 34 | 0 |
| % Plants Showing | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | | %Change | | | | | | |
| '86 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| '99 | | 00% | | | 00% | | | 00% | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | | |
| | | | | | | | | | | | | '99 | 0 | | - | | | |

| A G R E | Y | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | Total |
|--|----|----------------------------|---------------------|---|-----|------------------|-----|---|-------------------|---|-------------|---------|-------|------|--------------------|--------------------------------|-------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | |
| Eriogonum microthecum | | | | | | | | | | | | | | | | | |
| M 99 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - | 0 |
| | | 10 | 1 | 6 | - | - | 1 | - | - | - | 18 | - | - | - | 360 | 4 | 18 |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | %Change | | | | | |
| | | | '86 | | 00% | | 00% | | 00% | | | | | | | | |
| | | | '99 | | 06% | | 39% | | 00% | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | |
| | | | | | | | | | | | | '99 | 360 | | - | | |
| Gutierrezia sarothrae | | | | | | | | | | | | | | | | | |
| S 99 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| | | 14 | - | - | - | - | - | - | - | - | 14 | - | - | - | 280 | | 14 |
| Y 99 | 86 | 14 | - | - | - | - | - | - | - | - | 14 | - | - | - | 466 | | 14 |
| | | 155 | - | - | - | - | - | - | - | - | 155 | - | - | - | 3100 | | 155 |
| M 99 | 86 | 69 | - | - | - | - | - | - | - | - | 69 | - | - | - | 2300 | 7 | 69 |
| | | 553 | - | - | - | - | - | - | - | - | 553 | - | - | - | 11060 | 6 | 553 |
| D 99 | 86 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | 1 | 100 | | 3 |
| | | 2 | - | - | - | - | - | - | - | - | - | - | 1 | 1 | 40 | | 2 |
| X 99 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | 220 | | 11 |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | %Change | | | | | |
| | | | '86 | | 00% | | 00% | | 01% | | | | | | | +80% | |
| | | | '99 | | 00% | | 00% | | .28% | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 2866 | Dec: | 3% | | |
| | | | | | | | | | | | | '99 | 14200 | | 0% | | |
| Juniperus osteosperma | | | | | | | | | | | | | | | | | |
| Y 99 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| | | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | 2 |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | %Change | | | | | |
| | | | '86 | | 00% | | 00% | | 00% | | | | | | | | |
| | | | '99 | | 00% | | 00% | | 00% | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | |
| | | | | | | | | | | | | '99 | 40 | | - | | |
| Opuntia spp. | | | | | | | | | | | | | | | | | |
| Y 99 | 86 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | 1 |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| M 99 | 86 | 5 | - | - | - | - | - | - | - | - | 5 | - | - | - | 166 | 7 | 5 |
| | | 13 | - | - | - | - | - | - | - | - | 13 | - | - | - | 260 | 10 | 13 |
| D 99 | 86 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | 1 |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| X 99 | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 |
| | | - | - | - | - | - | - | - | - | - | - | - | - | - | 20 | | 1 |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | %Change | | | | | |
| | | | '86 | | 00% | | 00% | | 00% | | | | | | | +11% | |
| | | | '99 | | 00% | | 00% | | 00% | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 232 | Dec: | 14% | | |
| | | | | | | | | | | | | '99 | 260 | | 0% | | |

| A G R E | Y | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | Total | | | | | | | | | |
|--|----|----------------------------|---------------------|---|---|------------------|---|---|-------------------|---|-------------|----------------|-----|------|--------------------|--------------------------------|-------|--|--|--|--|--|--|--|--|--|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | | | | | | | | | | |
| <i>Philadelphus microphyllus</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | 86 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 66 | | 2 | | | | | | | | | |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | | | | | | | | | |
| M | 86 | 4 | 1 | - | - | - | - | - | - | - | 5 | - | - | - | 166 | 15 14 | 5 | | | | | | | | | |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - - | 0 | | | | | | | | | |
| D | 86 | 3 | - | - | - | - | - | - | - | - | 1 | - | - | 2 | 100 | | 3 | | | | | | | | | |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | | | | | | | | | |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | | | | | | | | |
| '86 | | | 10% | | | 00% | | | 20% | | | | | | | | | | | | | | | | | |
| '99 | | | 00% | | | 00% | | | 00% | | | | | | | | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 332 | Dec: | 30% | | | | | | | | | | | |
| | | | | | | | | | | | | '99 | 0 | | 0% | | | | | | | | | | | |
| <i>Pinus edulis</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | 86 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 33 | | 1 | | | | | | | | | |
| | 99 | 2 | - | - | 2 | - | - | - | - | - | 4 | - | - | - | 80 | | 4 | | | | | | | | | |
| Y | 86 | 3 | - | - | - | - | - | - | - | - | 3 | - | - | - | 100 | | 3 | | | | | | | | | |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | | | | | | | | | |
| M | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - - | 0 | | | | | | | | | |
| | 99 | - | - | - | - | - | - | - | - | - | 1 | 1 | - | - | 20 | - - | 1 | | | | | | | | | |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | | | | | | | | |
| '86 | | | 00% | | | 00% | | | 00% | | | | | | | | | | | | | | | | | |
| '99 | | | 00% | | | 100% | | | 00% | | | | | | | | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 100 | Dec: | - | | | | | | | | | | | |
| | | | | | | | | | | | | '99 | 20 | | - | | | | | | | | | | | |
| <i>Purshia tridentata</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | 86 | 3 | 1 | - | - | - | - | - | - | - | 4 | - | - | - | 133 | | 4 | | | | | | | | | |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | | | | | | | | | |
| M | 86 | - | 2 | - | - | - | - | - | - | - | 2 | - | - | - | 66 | 50 36 | 2 | | | | | | | | | |
| | 99 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | - - | 0 | | | | | | | | | |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | | | | | | | | |
| '86 | | | 50% | | | 00% | | | 00% | | | | | | | | | | | | | | | | | |
| '99 | | | 00% | | | 00% | | | 00% | | | | | | | | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 199 | Dec: | - | | | | | | | | | | | |
| | | | | | | | | | | | | '99 | 0 | | - | | | | | | | | | | | |
| <i>Rhus trilobata trilobata</i> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | 86 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | | 0 | | | | | | | | | |
| | 99 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 40 | | 2 | | | | | | | | | |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | <u>%Change</u> | | | | | | | | | | | | | | |
| '86 | | | 00% | | | 00% | | | 00% | | | | | | | | | | | | | | | | | |
| '99 | | | 00% | | | 00% | | | 00% | | | | | | | | | | | | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 | 0 | Dec: | - | | | | | | | | | | | |
| | | | | | | | | | | | | '99 | 40 | | - | | | | | | | | | | | |

| A G E | Y | Form Class (No. of Plants) | | | | | | | | | Vigor Class | | | | Plants Per Acre | Average (inches) Ht. Cr. | Total | |
|--|----------|----------------------------|---------------------|--------|--------|------------------|--------|--------|-------------------|--------|-------------|------------|----------|--------|--------------------|--------------------------------|---------|---------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 1 | 2 | 3 | 4 | | | | |
| Sclerocactus | | | | | | | | | | | | | | | | | | |
| M 99 | 86 99 | - 2 | - - | - - | - - | - - | - - | - - | - - | - - | - 2 | - - | - - | - - | 0 40 | - 2 | 0 2 | |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | %Change | | | | | | |
| | | | '86 '99 | | | 00% 00% | | | 00% 00% | | | 00% 00% | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 '99 | 0 40 | Dec: | | - - | | |
| Symphoricarpos oreophilus | | | | | | | | | | | | | | | | | | |
| M 99 | 86 99 | - 12 | - - | - - | - - | - - | - - | - - | - - | - - | - 12 | - - | - - | - - | 0 240 | - 22 | 0 39 | 0 12 |
| D 99 | 86 99 | - 6 | - - | - - | - - | - - | - - | - - | - - | - - | - 6 | - - | - - | - - | 0 120 | | | 0 6 |
| X 99 | 86 99 | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | - - | 0 40 | | | 0 2 |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | %Change | | | | | | |
| | | | '86 '99 | | | 00% 00% | | | 00% 00% | | | 00% 00% | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 '99 | 0 360 | Dec: | | 0% 33% | | |
| Yucca baccata baccata | | | | | | | | | | | | | | | | | | |
| M 99 | 86 99 | 3 - | - - | - - | - - | - - | - - | - - | - - | - - | 3 - | - - | - - | - - | 100 0 | 21 - | 24 - | 3 0 |
| % Plants Showing | | | <u>Moderate Use</u> | | | <u>Heavy Use</u> | | | <u>Poor Vigor</u> | | | %Change | | | | | | |
| | | | '86 '99 | | | 00% 00% | | | 00% 00% | | | 00% 00% | | | | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | '86 '99 | 100 0 | Dec: | | - - | | |